Oregon and Washington State Framework

Clearinghouse Hydrography Data Dictionary

Physical Data Model
Version 1.1

Prepared by the

Washington and Oregon
Hydrography Framework
Technical Work Groups

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Section 1 Database Overview

Background and Document Contents

This data dictionary describes data for the Washington and Oregon Framework Hydrography data and the standard system used to identify the states surface water.

The Framework goal was to utilize an existing data model that would enable various participants to locate and identify the state's marine and fresh surface water. The system was developed to provide a standard for referencing surface water bodies and watercourses, and to provide a vehicle for cross-referencing existing surface water data between agencies and groups in both GIS and tabular formats.

It is intended that this physical data model provide the backbone whereby users may each attach and retain their own particular surface water data. The standard identifiers provided by this system will ideally facilitate data exchange on a wide scale amongst water management entities and reduce redundancy in data collection.

For additional information about Dynamic Segmentation and/or the rules and procedures for applying this model, please refer to the companion document titled *"Oregon and Washington State Framework Hydrography Concepts, Rules & Procedures."*

Document Contents

Section 1 is comprised of a description of the data layers, database listings and naming conventions.
Section 2 describes the working physical data model, how system identifiers and indexing are carried, the database contents, the imbedded metadata, and an explanation of naming standards and coding structure.
Section 3 contains an explanation of the format of the data dictionary sheets and the larger detailed code tables.

Data Layer Descriptions

The Framework model allows for the storage of all hydrographic features.   Successful implementation of the Framework Hydrography data model requires that participants understand the way in which the different features are modeled and that they have a common understanding of the terms and definitions contained in the document. This section addresses the way in which these features are modeled.

Hydrographic features are modeled in four layers:

Water Points (WP)
Watercourses (WC)
Water Bodies (WB)
Water Body Shorelines (WS)

The desired source scale for all layer acquisition is 1:24,000 or better. 1:100,000 data may be substituted where layers at the desired source scale have not been developed. All data is stored in NAD83 geographic coordinates, double precision.

A longitude/latitude identifier (LLID) uniquely identifies each hydrographic feature in the model. This 13-character identifier is composed of the concatenated decimal degree longitude and latitude of the feature. The identifier is unique within each layer but there is no requirement that it be unique between the layers. The geographic location used to generate the LLID varies depending on the data layer. Consult the detailed layer attribute table definitions (Section 2) to determine the location used to generate the LLID for that layer.

Each feature in the Water Point (WP), Watercourse (WC) and Water Body (WB) layers share the following attributes:

- a unique LLID identifier.
- a generalized classification of the hydrographic feature type (e.g. spring, stream, lake etc.)
- a classification of the type of cartographic element. This is a more detailed classification of the feature useful for mapping or more detailed database queries.
- a classification of seasonal, or periodic behavior of the water feature (e.g. perennial, intermittent or ephemeral)
- a robust set of attributes that describe the history of spatial edits to each feature. See detailed layer attribute table definitions (Section 2) for a complete description of these feature history attributes.

What follows is a short description of each of the four layers present in the model, the type(s) of features included in each layer and the relationships between the related information.

The Water Point (WP) layer is the repository for springs, seeps and other hydrographic features with limited spatial extent (i.e. most easily represented by a point). This layer consists of a point coverage and a single related table. The related table describes the history of spatial edits to the feature.

The Watercourse (WC) layer consists of stream, canal, flume, pipeline and other linear hydrographic feature centerlines. Where these features (especially streams) are represented as double lined features at the source scale they will be represented in this layer by their centerline. Streams that flow through water bodies such as lakes and reservoirs will also be represented by a centerline. This feature has been modeled to allow for flow modeling. All arcs must point downstream. This layer will be routed using the LLID identifier for the stream. All associated attributes are stored as event tables on the LLID routes. The stream routes are indexed starting from 0 at the mouth of the stream to some maximum value at the headwaters. All route measures will be initially calibrated in kilometers to three decimal places. As these routes are edited, every effort will be made to keep the measure value at a given map location from shifting. This will be accomplished by stretching or shrinking the measure values to accommodate lengthening or shrinking along the route as its X,Y coordinates are edited. Thus, over time, the measures will only approximate kilometers along a watercourse or shoreline. These measures are simply an indexing scheme for linear referencing, not a stored attribute of shoreline or watercourse length.

The Water Body (WB) layer consists of sounds, bays, lakes, ponds, wetlands, reservoirs, inundation areas, the double lined portions of streams and other hydrographic features best represented as areas. For ease of managing these features they have been modeled as regions rather than simple polygons in the Framework model. However, by agreement, each water body will be stored as a non-overlapping, non-multi-part region (i.e. there will be one polygon per region). The advantages of this approach will be described in detail in document titled *"Oregon and Washington State Framework Hydrography Concepts, Rules & Procedures."* Water body attributes will be stored in the WB region attribute table (PATWB.) Changes to the water body shape will be made and tracked in the water body shoreline coverage.

The Water Body Shoreline (WS) layer consists of one or more representations of the shoreline of each water body. One representation of the shoreline for each water body will be flagged in the Framework database as the "default" shoreline. This default shoreline will be coincident with the water body perimeter in the water body (WB) layer. This layer is modeled in the Framework to accommodate those instances where multiple shorelines based on different datum (e.g. mean high water, mean low water etc.) are useful, especially marine shorelines. This layer is modeled as a routed linear feature. Water will be on the right side of each route and each shoreline will be represented by one or more non-overlapping routes. However, most simple water bodies (e.g. small lakes and ponds) will likely be represented by a single route. The history of spatial edits to each water body will be stored as an event on the route(s) on the default shoreline. Our agreement is that unless there is good justification to do so, all other shoreline attributes will be stored as events on the default shoreline. Non-default shorelines are intended to accommodate specialized requirements.

Database Listing and Naming Conventions

This section contains a list of the data files and diagrams depicting the relationships that exist between the files.

Database Layers and Coverages

Layer Description	Feature Class	Attribute Table Name
Water bodies areas	Region	WB.PATWB
Water body shorelines	Route	WS.RATWS
Watercourses	Route	WC.RATWC
Water points	Point	WP.PAT

Naming Conventions
Table Names:
COVERAGE NAME . TOPOLOGY TYPE _ DESCRIPTION
   Examples: WC.EVT_NAME
         WS.EVT_SL_TYPE
         WP.REL_FTR_HST

Lookup Table Names:
COVERAGE NAME . TOPOLOGY TYPE _ ITEM DESCRIPTION
   Examples: WC.LUT_FTR_ORG_CD

Column Names or Items in Lookup Table
    ITEM NAME   FTR_ORG_CD
    ITEM NAME_LU   FTR_ORG_LU
    (replace_CD with _LU for short description)

    ITEM NAME_DS   FTR_ORG_DS
    (replace _CD with _DS for long description*)*

Item or Field Names:
COVERAGE NAME . DESCRIPTION _ CLASS/KEY
   Example: WC.LN_TYP_CD

Table and Attribute Requirements

All tables are mandatory and must be present in order to be placed in the Clearinghouse. In Section 2, you will find a description of each table and whether the attributes or fields contained within those tables should be applied to all the features on stream network or just on a portion of the features. We refer to this as the "Attributes Extent" and it's intended to help users identify the extent of coverage. In some cases attributes are available for only some stream/water body features, in those cases you are not required to populate the database if information is not available.

The data described below is provided in ARC/INFO format. All data is stored in NAD83 geographic coordinates, double precision.

Watercourses

Coverage/Table	File Name
Coverage	WC
Line attribute table	WC.AAT
Section table	WC.SECWC
Route attribute table	WC.RATWC
Event table	WC.EVT_NAME
Event table	WC.EVT_LN_TYPE
Event table	WC.EVT_FTR_TYPE
Event table	WC.EVT_RRF
Event table	WC.EVT_STRM_FLOW
Event table	WC.EVT_FTR_HST

Water Bodies

Coverage/Table	File Name
Coverage	WB
Region attribute table	WB.PATWB

Water Shorelines

Coverage/Table	File Name
Coverage	WS
Line attribute table	WS.AAT
Section table	WS.SECWS
Route attribute table	WS.RATHYD
Event table	WS.EVT_SL_TYPE
Event table	WS.EVT_FTR_HST

Water Points

Coverage/Table	File Name
Coverage	WP
Point attribute table	WP.PAT
Point relate table	WP.REL_FTR_HST

Please refer to Section 3 - Appendix for a full listing of associated code tables. There you will find the actual code tables as they're reflected in the four data coverage's (watercourses, water shorelines, water bodies and water points) with the similarities and differences between them noted.

Database File Relationships

The following diagrams depict the relationships between the data files comprising the three layers:
Figure 1-1 Watercourse
Figure 1-2 Water Body
Figure 1-3 Water Shoreline
Figure 1-4 Water Point

Figure 1-1
Database File Diagram - Watercourses
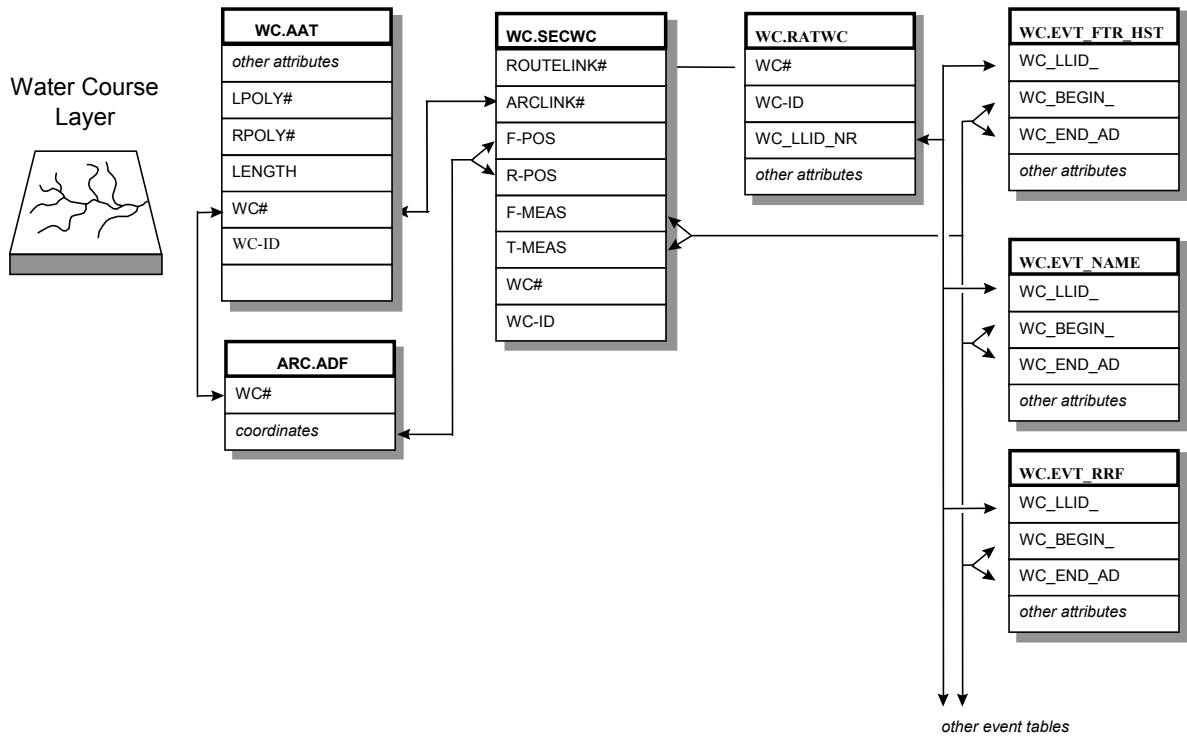
Figure 1-2
Database File Diagram – Water Bodies

Water body
Layer

WB.PATWB
AREA
PERIMETER
WB#
WB-ID
WB_LLID_NR
Other Attributes
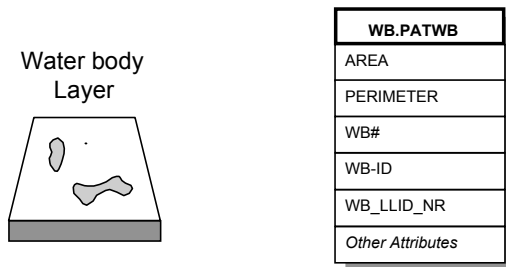
Figure 1-3
Database File Diagram - Water Shoreline

Shoreline
Layer

WS.AAT
other attributes
LPOLY#
RPOLY#
LENGTH
WS#
WS-ID

WS.SECWS
ROUTELINK#
ARCLINK#
F-POS
R-POS
F-MEAS
T-MEAS
WS#
WS-ID

WS.RATWS
WS#
WS-ID
WS_LLID_NR
other attributes

WS.EVT_FTR_HST
WS_LLID_NR
WS_BE
WS
other attributes

ARC.ADF
WS#
coordinates

other event tables
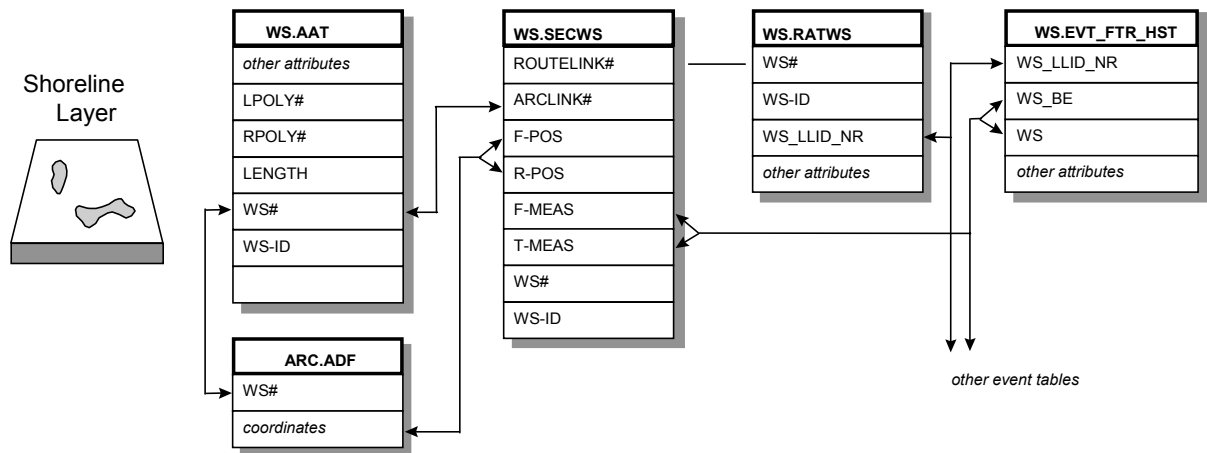
Figure 1-4
Database File Diagram – Water Points
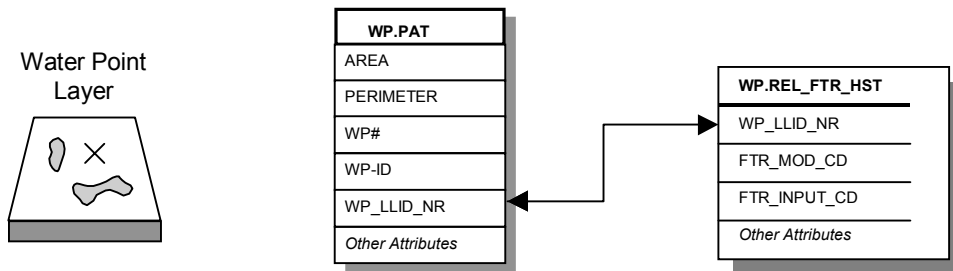
Section 2   Washington Hydrography Framework Data Descriptions

Watercourse Data Layer Description

This layer consists of stream, canal, flume, pipeline and other linear hydrographic feature centerlines. Where these features (especially streams) are represented as double lined features at the source scale they will be represented in this layer by their centerline. Streams that flow through water bodies such as lakes and reservoirs will also be represented by a centerline.

Line Layer: Watercourses   **Layer Name: WC**
                                                                      Table Name: WC.AAT

Arc Attribute Table

Defined Item Name	Item Definition
FNODE#	4,5,B
TNODE#	4,5,B
LPOLY#	4,5,B
RPOLY#	4,5,B
LENGTH	8,18,F,5
WC#	4,5,B
WC-ID	4,5,B

Data Classification - **AAT**

FNODE#

Arc from node internal number

TNODE#

Arc to node internal number

LPOLY#

Internal identifier of polygon to left of arc.

RPOLY#

Internal identifier of polygon to right of arc.

LENGTH

Arc length, units in decimal degrees.

WC#

Arc internal number, software assigned.

WC-ID

Arc identifier assigned by user. This item is not used nor is it changed. Presence required by the software.

Section Table: Watercourses   **Table Name: WC.SECWC**

Section Table

Defined Item Name	Item Definition
ROUTELINK#	4,5,B
ARCLINK#	4,5,B
F-MEAS	4,12,F,3
T-MEAS	4,12,F,3
F-POS	4,12,F,3
T-POS	4,12,F,3
WC#	4,5,B
WC-ID	4,5,B

Data Classification - **SEC**

ROUTELINK#
Route link number. Route internal number from RAT; identifies the route to which the section belongs.

ARCLINK#
Arc link number. Arc internal number from the AAT; identifies the arc to which the section belongs. It's provided to enable keyfile selections within ARCPLOT. Links with the item WC#.

F-MEAS
From measure. Measure of start position of section.

T-MEAS
To measure. Measure of end position of section.

F-POS
From position. Start position in terms of percentage of existing arc.

T-POS
To position. End position in terms of percentage of existing arc.

WC#
Internal sequence number of the sections.

WC-ID
User assigned section identifier set to equal the interval section identifier. This item is not used nor is it changed. Presence required by the software.

Route Table: Watercourses   **Route Table Name: WC.RATWC**

Route Attribute Table

Defined Item Name	Item Definition
WC#	4,5,B
WC-ID	4,5,B
WC_LLID_NR	13,13,C

Data Classification - **RAT**

WC#
Route system internal sequence number

WC-ID
Route-system ID, user defined. This item is not used nor is it changed. Presence required by the software.

WC_LLID_NR
Watercourse longitude/latitude identifier number. The 13 character longitude/latitude derived unique watercourse route identifier (this is also known as LLID in the federal arena.) All watercourse segments are grouped into watercourse routes. The identifier is based on position of the downstream point (mouth) of the watercourse. The identifier code is composed by concatenating the decimal degree values (to four places of precision) of the coordinates (minus the decimal points). LLID numbers are not unique across the four coverages. There is no valid default value for this field and it must be populated.
    Example: 1215613480987

Linear Event Table: Watercourses   **Table Name: WC.EVT_LN_TYPE**

Event Table Outline

Defined Item Name	Item Definition	Attribute Extent
WC_LLID_NR	13,13,C	
WC_BEGIN_AD	4,12,F,3	
WC_END_AD	4,12,F,3	
WC_LN_TYPE_CD	2,2,I	Fully populated
WC_FLOW_PATH_CD 2,2,I	Fully populated	

Data Classification - **EVT**

WC_LLID_NR
Watercourse longitude/latitude identifier number. The 13 character longitude/latitude derived unique watercourse route identifier (this is also known as LLID in the federal arena.) All watercourse segments are grouped into watercourse routes. The identifier is based on position of the downstream point (mouth) of the watercourse. The identifier code is composed by concatenating the decimal degree values (to four places of precision) of the coordinates (minus the decimal points). LLID numbers are not unique across the four coverages. There is no valid default value for this field and it must be populated.
>   **Example: 1215613480987**

WC_BEGIN_AD
Watercourse begin address. The beginning, or downstream, index of the watercourse segment. The address or index at which an event or attribute can be associated to a route.
>   **Example: 000.000**

WC_END_AD
Watercourse end address. The ending, or upstream, index of the watercourse segment. The address or index at which an event or attribute can be associated to a route.
>   **Example: 036.025**

WC_LN_TYPE_CD
Watercourse line type code. The type of watercourse feature that is represented in the database. Code used to differentiate the primary cartographic function of the lines regardless of the hydrographic feature or hydrologic function they represent
>   **Example: 20**

These codes can be found in the associated lookup table listed in Section 3 - Appendix.

WC_FLOW_PATH_CD
Watercourse flow path code. Defines the flow hierarchy of stream centerline that are within water body features. This code is used to define and segregate out the various flow pathways though water bodies. These centerlines usually have a WC_LN_TYPE_CD of 20 or 21. For single line watercourses code the event as "not applicable."
>   **Example: Primary**

These codes can be found in the associated lookup table listed in Section 3 - Appendix.

Linear Event Table: Watercourses   **Table Name: WC.EVT_NAME**

Event Table Outline

Defined Item Name	Item Definition	Attribute Extent
WC_LLID_NR	13,13,C	
WC_BEGIN_AD	4,12,F,3	
WC_END_AD	4,12,F,3	
WC_GNIS_NM	50,50,C	Partially populated
WC_GNIS_NR	8,8,I	Partially populated

Data Classification - **EVT**

WC_LLID_NR
Watercourse longitude/latitude identifier number. The 13 character longitude/latitude derived unique watercourse route identifier (this is also known as LLID in the federal arena.) All watercourse segments are grouped into watercourse routes. The identifier is based on position of the downstream point (mouth) of the watercourse. The identifier code is composed by concatenating the decimal degree values (to four places of precision) of the coordinates (minus the decimal points). LLID numbers are not unique across the four coverages. There is no valid default value for this field and it must be populated.
>**Example: 1215613480987**

WC_BEGIN_AD
Watercourse begin address. The index measure of the beginning, or downstream, extent of the event. The address or index at which an event or attribute can be associated to a route.
>**Example: 000.000**

WC_END_AD
Watercourse end address. The index measure of the ending, or upstream, extent of the event. The address or index at which an event or attribute can be associated to a route.
>**Example: 036.025**

WC_GNIS_NM
Watercourse GNIS name. The name of the feature as represented within the Geographic Names Information System (GNIS). The USGS is the mandated source of this information. Not all features contained within the coverage will have GNIS names.
>**Example: Deschutes River**

WC_GNIS_NR
Watercourse GNIS (Geographic Names Information System) number. The unique identifier number assigned to each feature name represented within the GNIS database. This number is used to insert and/or update watercourse names stored in the framework hydrography database. Not all features contained within the coverage will have GNIS number.

Event Table Outline

Defined Item Name	Item Definition	Attribute Extent
WC_LLID_NR	13,13,C	
WC_BEGIN_AD	4,12,F,3	
WC_END_AD	4,12,F,3	
WC_HYDR_FTR_CD	2,2,C	Fully populated
WC_CART_FTR_CD	4,4,I	Fully populated

Data Classification - **EVT**

WC_LLID_NR

Watercourse longitude/latitude identifier number. The 13 character longitude/latitude derived unique watercourse route identifier (this is also known as LLID in the federal arena.) The identifier is based on position of the downstream point (mouth) of the watercourse. The identifier code is composed by concatenating the decimal degree values (to four places of precision) of the coordinates (minus the decimal points). LLID numbers are not unique across the four coverages. There is no valid default value for this field and it must be populated.

       Example: 1215613480987

WC_BEGIN_AD

Watercourse begin address. The index measure of the beginning, or downstream, extent of the event. The address or index at which an event or attribute can be associated to a route.

       Example: 000.000

WC_END_AD

Watercourse end address. The index measure of the ending, or upstream, extent of the event. The address or index at which an event or attribute can be associated to a route.

       Example: 036.025

WC_HYDR_FTR_CD

Watercourse hydrographic feature code. The code used to describe the hydrographic feature type that the watercourse represents.

       Example: ST

These codes can be found in the associated lookup table listed in Section 3 - Appendix.

WC_CART_FTR_CD

Watercourse cartographic feature code. The code used to describe the cartographic feature type that the watercourse represents. This represents feature codes developed initially by the USGS and used on the DLG's.

       Example: 412

These codes can be found in the associated lookup table listed in Section 3 - Appendix.

Linear Event Table: Watercourses   **Table Name: WC.EVT_RRF**

Event Table Outline

Defined Item Name	Item Definition	Attribute Extent
WC_LLID_NR	13,13,C	
WC_BEGIN_AD	4,12,F,3	
WC_END_AD	4,12,F,3	
WC_RRF_NR	17,17,C	Partially populated

Data Classification - **EVT**

WC_LLID_NR
Watercourse longitude/latitude identifier number. The 13 character longitude/latitude derived unique watercourse route identifier (this is also known as LLID in the federal arena.) All watercourse segments are grouped into watercourse routes. The identifier is based on position of the downstream point (mouth) of the watercourse. The identifier code is composed by concatenating the decimal degree values (to four places of precision) of the coordinates (minus the decimal points). LLID numbers are not unique across the four coverages. There is no valid default value for this field and it must be populated.
      Example: 1215613480987

WC_BEGIN_AD
Watercourse begin address. The index measure of the beginning, or downstream, extent of the event. The address or index at which an event or attribute can be associated to a route.
      Example: 000.000

WC_END_AD
Watercourse end address. The index measure of the ending, or upstream, extent of the event. The address or index at which an event or attribute can be associated to a route.
      Example: 036.025

WC_RRF_NR
Watercourse River Reach File number. This represents the unique identifier used by the USEPA. A unique identifiers is carried on individual stream segments, running confluence to confluence. The identifier is comprised of 3 components – the watercourse hydrographic unit code number, the watercourse river reach file segment number, and the watercourse river_reach file mile number.   The source of this data will be USGS National Hydrography Database (NHD) once Washington State 100K hydrography is incorporated into that database. Not all stream segments have been assigned a RRF number by the USGS. In some cases this information in not necessarily available.

Event Table Outline

Defined Item Name	Item Definition	Attribute Extent
WC_LLID_NR	13,13,C	
WC_BEGIN_AD	4,12,F,3	
WC_END_AD	4,12,F,3	
WC_CONTU_CD	3,3,C	Fully populated
WC_PERIOD_CD	3,3,C	Fully populated

Data Classification - **EVT**

WC_LLID_NR
Watercourse longitude/latitude identifier number. The 13 character longitude/latitude derived unique watercourse route identifier (this is also known as LLID in the federal arena.) All watercourse segments are grouped into watercourse routes. The identifier is based on position of the downstream point (mouth) of the watercourse. The identifier code is composed by concatenating the decimal degree values (to four places of precision) of the coordinates (minus the decimal points). LLID numbers are not unique across the four coverages. There is no valid default value for this field and it must be populated.
        Example: 1215613480987

WC_BEGIN_AD
Watercourse begin address. The index measure of the beginning, or downstream, extent of the event. The address or index at which an event or attribute can be associated to a route.
        Example: 000.000

WC_END_AD
Watercourse end address. The index measure of the ending, or upstream, extent of the event. The address or index at which an event or attribute can be associated to a route.
        Example: 036.025

WC_CONTU_CD
Watercourse continuity code. This is the classification of stream flow primarily in relation to its expression at the earth's surface. The most common condition is that a stream is continuous in space.
With respect to continuity, streams may be divided into continuous streams and interrupted steams. An interrupted stream is one that contains (a) perennial stretches with intervening intermittent or ephemeral stretches or (b) intermittent stretches with intervening ephemeral stretches. These two classes of interrupted streams are designated respectively, perennial interrupted streams and intermittent interrupted streams.   A continuous stream is one that does not have interruptions in space.
        Example of use with Periodicity Code:

You do not need to separate out each small segment of perennial, intermittent or ephemeral stream.   If they sporadically exist along a "reach" the hydrologist chooses the dominant periodicity and calls the continuity interrupted.   If the reach is not continuously perennial or intermittent we are noting it through the use of the interrupted attribute.   It may be a scale issue but it also says a lot about the channel itself. These codes can be found in the associated lookup table in Section 3 - Appendix.

WC_PERIOD_CD
Watercourse periodicity code. This is a classification for watercourses in terms of the seasonal behavior of the feature over time or in terms of its surface flow.
      Example: int

These codes can be found in the associated lookup table in Section 3 – Appendix.

Linear Event Table: Watercourses　　　　　　**Table Name: WC.EVT_FTR_HST**

Event Table Outline

Defined Item Name	Item Definition	Attribute Extent
WC_LLID_NR	13,13,C	
WC_BEGIN_AD	4,12,F,3	
WC_END_AD	4,12,F,3	
FTR_MOD_CD	3,3,C	Fully populated
FTR_INPUT_CD	2,2,I	Fully populated
FTR_INTRP_CD	2,2,I	Fully populated
FTR_SRC_CD	3,3,I	Fully populated
FTR_SRC_DT	8,8,D	Fully populated
FTR_SRCSCALE_NR	7,7,I	Fully populated
FTR_ACCUR_NR	4,12,F,3	Fully populated
FTR_ORG_CD	12,12,C	Fully populated
FTR_EDIT_DT	8,8,D	Fully populated

Data Classification - **EVT**

WC_LLID_NR
Watercourse longitude/latitude identifier number. The 13-character longitude/latitude derived unique watercourse route identifier (this is also known as LLID in the federal arena.) All watercourse segments are grouped into watercourse routes. The identifier is based on position of the downstream point (mouth) of the watercourse. The identifier code is composed by concatenating the decimal degree values (to four places of precision) of the coordinates (minus the decimal points). LLID numbers are not unique across the four coverages. There is no valid default value for this field and it must be populated.
　　　　Example: 1215613480987

WC_BEGIN_AD
Watercourse begin address. The index measure of the beginning, or downstream, extent of the event.
　　　　Example: 000.000

WC_END_AD
Watercourse end address. The index measure of the ending, or upstream, extent of the event.
　　　　Example: 036.025

FTR_MOD_CD
Feature modify code. Identifies the type of change that occurred to hydrography watercourse feature. Tracks the type of modification performed on the database. These codes can be found in the associated lookup table.
　　　　Example: add

These codes can be found in the associated lookup table listed in Section 3 - Appendix.

FTR_INPUT_CD

Feature input code. The manner in which the hydrography watercourse data is entered or updated in the spatial database. These codes can be found in the associated lookup table.

      Example: Scan

These codes can be found in the associated lookup table listed in Section 3 - Appendix.

FTR_INTRP_CD

Feature interpretation code. The methodology used to compose the hydrography watercourse information and how it was derived prior to data entry into the spatial coverage.

      Example: 1

These codes can be found in the associated lookup table listed in Section 3 - Appendix.

FTR_SRC_CD

Feature source code. The compilation map or image source used when adding or updating hydrography watercourse data.

      Example: 12

These codes can be found in the associated lookup table listed in Section 3 - Appendix.

FTR_SRC_DT

Feature source date. The compilation map or image source date used for the addition or update of hydrography watercourse data. A default date code should be used when no source date is available for historical information.

      Example: 19990515 (CCYYMMDD = May 15, 1999)
      Default: 14520101 (CCYYMMDD = January 1, 1452

FTR_SRCSCALE_NR

Feature source scale number. Describes the scale denominator of the map or image source for the hydrography watercourse data additions or updates in the database. Exact scale can be input. The density of hydrography features displayed will vary by the base map scale. A default scale of "0" should be used when the source scale is unknown.

      Example: 2400
      Default: 0

FTR_ACCUR_NR

Feature accuracy number. Describes the positional accuracy of the hydrography watercourse data being added or updated in the database.   Describes the correctness of the measurement.   Use actual value e.g. .001; 3; 100.   All units are entered in meters. A default code of "0.000" should be used when the accuracy is unknown.

      Example: 24000
      Default: 0.000

FTR_ORG_CD
Feature organization code. The organization that compiled, entered, updated or deleted the hydrography watercourse data. This list will grow as new organizations begin to add or update information and are certified by the clearinghouse. The Clearinghouse Manager will maintain the list of organizations authorized to participate in the editing of Hydrography Framework data.
Example: cothurwa

These codes can be found in the associated lookup table listed in Section 3 - Appendix.

FTR_EDIT_DT
Feature edit date. The date the feature was either entered, updated or deleted in the hydrography coverage. Represents the date when the data was incorporated into the database. This item is utilized to track changes in the database.
Example: 19980515 (CCYYMMDD = May 15, 1998)

Water Body Data Layer Description

This layer consists of sounds, bays, lakes, ponds, reservoirs, inundation areas, the double lined portions of streams and other hydrographic features best represented as areas.

Polygon Layer: Water Bodies **Layer Name: WB**

Table Name: WB.PATWB

Region Attribute Table Outline

Defined Item Name	Item Definition	Attribute Extent
AREA	8,18,F,5	
PERIMTER	8,18,F,5	
WB#	4,5,B	
WB-ID	4,5,B	
WB_LLID_NR	13,13,C	
WB_HYDR_FTR_CD	2,2,C	Fully populated
WB_CART_FTR_CD	4,4,I	Fully populated
WB_GNIS_NM	50,50,C	Partially populated
WB_GNIS_NR	8,8,I	Partially populated
WB_PERIOD_CD	3,3,C	Fully populated

Data Classification - **REGION**

AREA
Water body area in decimal degrees.

PERIMETER
Water body perimeter length in decimal degrees.

WB#
Water body region internal number; software assigned.

WB-ID
Water body region user-defined ID. This item is not used nor is it changed. Presence required by the software.

WB_LLID_NR
Water body longitude/latitude identifier number. The 13-character longitude/latitude derived unique identifier of the water body. All water bodies and islands represented as polygonal features are assigned an identifier. The identifier is based on position of the polygon label point. The identifier code is composed by concatenating the decimal degree values (to four places of precision) of the coordinates (minus the decimal points). LLID numbers are not unique across the four coverages. There is no valid default value for this field and it must be populated.
> **Example: 1234567890987**

WB_HYDR_FTR_CD
Water body hydrographic feature code. The code used to describe the hydrographic feature type that the water body polygon represents.
       Example: LA

These codes can be found in the associated lookup table listed in Section, pg. 51.

WB_CART_FTR_CD
Water body cartographic feature code. The code used to describe the cartographic feature type that the water body polygon represents. This represents feature codes developed initially by the USGS and used on the DLG's.
       Example: 101

These codes can be found in the associated lookup table listed in Section 3 - Appendix.

WB_GNIS_NM
Water body GNIS name. The name of the water body as contained within the Geographic Names Information System (GNIS) which is maintained by the USGS. Not all features contained within the coverage will have GNIS names.
       Example: Ross Lake
       Default: blank or null

WB_GNIS_NR
Water body GNIS (Geographic Names Information System) number. The unique identifier number assigned to each feature name represented within the GNIS database. This number is used to insert and/or update water body names stored in the framework hydrography database. Not all features contained within the coverage will have GNIS number
       Example: 12345678
       Default: 0

WB_PERIOD_CD
Water body periodicity code. This is a classification of a water bodies in terms of the seasonal behavior of the feature over time or in terms of its surface flow.
       Example: per

These codes can be found in the associated lookup table listed in Section 3 - Appendix.

Shoreline Data Layer Description
This layer consists of one or more representations of the shoreline of each water body.

Line Layer: Water Shoreline

Layer Name: WS
Table Name: WS.AAT

Arc Attribute Table Outline

Defined Item Name	Item Definition
FNODE#	4,5,B
TNODE#	4,5,B
LPOLY#	4,5,B
RPOLY#	4,5,B
LENGTH	8,18,F,5
WS#	4,5,B
WS-ID	4,5,B

Data Classification - AAT

FNODE#
Arc from node internal number

TNODE#
Arc to node internal number

LPOLY#
Internal identifier of polygon to left of arc.

RPOLY#
Internal identifier of polygon to right of arc.

LENGTH
Arc length, units in decimal degrees.

WS#
Arc internal number, software assigned.

WS-ID
Arc identifier assigned by user. This item is not used nor is it changed. Presence required by the software.

Section Table: Water Shoreline   **Table Name: WS.SECWS**

Section Table Outline

Defined Item Name	Item Definition
ROUTELINK#	4,5,B
ARCLINK#	4,5,B
F-MEAS	4,12,F,3
T-MEAS	4,12,F,3
F-POS	4,12,F,3
T-POS	4,12,F,3
WS#	4,5,B
WS-ID	4,5,B

Data Classification - **SEC**

ROUTELINK#
Route link number. Route internal number from RAT; identifies the route to which the section belongs.

ARCLINK#
Arc link number. Arc internal number from the AAT; identifies the arc to which the section belongs. It's provided to enable keyfile selections within ARCPLOT. Links with the item WS#.

F-MEAS
From measure. Measure of start position of section.

T-MEAS
To measure. Measure of end position of section.

F-POS
From position. Start position in terms of percentage of existing arc.

T-POS
To position. End position in terms of percentage of existing arc.

WS#
Internal sequence number of the sections.

WS-ID
User assigned identifier set equal to the interval section identifier. This item is not used nor is it changed. Presence required by the software.

Route Table: Water Shoreline   **Table Name: WS.RATWS**

Route Attribute Table Outline

Defined Item Name		Item Definition	Attribute Extent
WS#		4,5,B	
WS-ID		4,5,B	
WS_LLID_NR		13,13,C	
WS_DATUM_CD	4,4,C	Fully populated	
WS_DFLT_SHORE_CD	1,1,C	Fully populated	

Data Classification - **RAT**

WS#
Route system internal sequence number

WS-ID
Route-system ID, user defined. This item is not used nor is it changed. Presence required by the software.

WS_LLID_NR
Water shoreline longitude/latitude identifier number. The 13-character longitude/latitude derived unique identifier of the shoreline. All water body shorelines and island shorelines are assigned an identifier. All shoreline segments are grouped into shoreline routes. The identifier is based on beginning of the route and is composed by concatenating the decimal degree values (to four places of precision) of the coordinates (minus the decimal points). LLID numbers are not unique across the four coverages. There is no valid default value for this field and it must be populated.
        Example: 1234567890987

WS_DATUM_CD
Water shoreline datum code. The character code that describes the type and level that the water body shoreline was mapped at.   The framework model is designed to store multiple shorelines; some of them are complete for a state's coastline while others are short segments. Shorelines consist of water body perimeters (lakes, ponds, and reservoirs) as well as linear segments like marine shorelines.
        Example: mhw

These codes can be found in the associated lookup table listed in Section 3 - Appendix.

WS_DFLT_SHORE_CD
Water shoreline default shoreline code. The character code that designates the shoreline that's used to build water body area features. The default shoreline is comprised of the mean-high water line (mh) and the fresh water (fw) shoreline. This field is included to unambiguously designate the default shoreline regardless of the future changes or exceptions to the business rules.
        Example: y

These codes can be found in the associated lookup table listed in Section 3 - Appendix.

Linear Event Table: Water Shoreline   **Table Name: WS.EVT_SL_TYPE**

Event Table Outline

Defined Item Name	Item Definition	Attribute Extent
WS_LLID_NR	13,13,C	
WS_BEGIN_AD	4,12,F,3	
WS_END_AD	4,12,F,3	
WS_TYPE_CD	2,2,I	Fully populated

Data Classification - **EVT**

WS_LLID_NR
Water shoreline longitude/latitude identifier number. The 13-character longitude/latitude derived unique identifier of the shoreline. All water body shorelines and island shorelines are assigned an identifier. All shoreline segments are grouped into shoreline routes. The identifier is based on beginning of the route and is composed by concatenating the decimal degree values (to four places of precision) of the coordinates (minus the decimal points). LLID numbers are not unique across the four coverages.
There is no valid default value for this field and it must be populated.
>   **Example: 1215613480987**

WS_BEGIN_AD
Water shoreline begin address. The beginning, or downstream, index of the segment. The address or index at which an event can be associated to a route
>   **Example: 020.035**

WS_END_AD
Water shoreline end address. The ending, or upstream, index of the segment. The address or index at which an event can be associated to a route.
>   **Example: 002.326**

WS_TYPE_CD
Water shoreline type code. The type of water body shoreline feature that is represented.
>   **Example: 1**

These codes can be found in the associated lookup table listed in Section 3 - Appendix.

Linear Event Table: Water Shoreline   **Table Name: WS.EVT_FTR_HST**

Event Table Outline

Defined Item Name	Item Definition	Attribute Extent
WS_LLID_NR	13,13,C	
WS_BEGIN_AD	4,12,F,3	
WS_END_AD	4,12,F,3	
FTR_MOD_CD	3,3,C	Fully populated
FTR_INPUT_CD	2,2,I	Fully populated
FTR_INTRP_CD	2,2,I	Fully populated
FTR_SRC_CD	3,3,I	Fully populated
FTR_SRC_DT	8,8,D	Fully populated
FTR_SRCSCALE_NR	7,7,I	Fully populated
FTR_ACCUR_NR	4,12,F,3	Fully populated
FTR_ORG_CD	12,12,C	Fully populated
FTR_EDIT_DT	8,8,D	Fully populated

Data Classification - **EVT**

WS_LLID_NR
Water shoreline longitude/latitude identifier number. The 13-character longitude/latitude derived unique identifier of the shoreline. All water body shorelines and island shorelines are assigned an identifier. All shoreline segments are grouped into shoreline routes. The identifier is based on beginning of the route and is composed by concatenating the decimal degree values (to four places of precision) of the coordinates (minus the decimal points). LLID numbers are not unique across the four coverages. There is no valid default value for this field and it must be populated.
> **Example: 1234567890987**

WS_BEGIN_AD
Water shoreline begin address. The index measure of the beginning, or lowest address, of the event. The address or index at which an event or attribute can be associated to a route.
> **Example: 034.066**

WS_END_AD
Water shoreline end address. The index measure of the ending, or highest address, of the event. The address or index at which an event or attribute can be associated to a route.
> **Example: 123.099**

FTR_MOD_CD
Feature modify code. Identifies the type of change that occurred to hydrography water shoreline feature. Tracks the type of modification performed on the database.
> **Example: del**

These codes can be found in the associated lookup table listed in Section 3 - Appendix.

FTR_INPUT_CD
Feature input code. The manner in which the hydrography shoreline data is added or updated in the spatial database.
     Example: 1

These codes can be found in the associated lookup table listed in Section 3 - Appendix.

FTR_INTRP_CD
Feature interpretation code. The methodology used to compose the hydrography shoreline information and how it was derived prior to data entry into the spatial coverage.
     Example: 6

These codes can be found in the associated lookup table listed in Section 3 - Appendix.

FTR_SRC_CD
Feature source code. The compilation map or image source used when adding or updating hydrography shoreline data.
     Example: 8

These codes can be found in the associated lookup table listed in Section 3 - Appendix.

FTR_SRC_DT
Feature source date. The compilation map or image source date used for the addition or update of hydrography shoreline data. A default date code should be used when no source date is available for historical information.
     Example: 19990515(CCYYMMDD = May 15,1999)
     Default: 14520101 (CCYYMMDD = January 1, 1452)

FTR_SRCSCALE_NR
Feature source scale number. Describes the scale denominator of the map or image source for the hydrography shoreline data additions or updates in the database. Exact scale can be input. The density of hydrography features displayed will vary by the base map scale. A default scale of "0" should be used when the source scale is unknown.
     Example: 24000
     Default: 0

FTR_ACCUR_NR
Feature accuracy number. Describes the positional accuracy of the hydrography shoreline data being added or updated in the database. Describes the correctness of the measurement. Refer to USGS map accuracy standards for more information. Use actual value e.g. .001; 3; 100. All units are entered in meters. A default code of "0.000" should be used when the accuracy is unknown.
       Example: 24000
       Default: 0.000

FTR_ORG_CD
Feature organization code. The organization that compiled, entered, updated or deleted the hydrography shoreline data. This list will grow as new organizations begin to add or update information and are certified by the clearinghouse. The Clearinghouse Manager will maintain the list of organizations authorized to participate in the editing of Hydrography Framework data.
Example: ctyolywa
These codes can be found in the associated lookup table listed in Section 3 - Appendix.

FTR_EDIT_DT

Feature edit date. The date the feature was either entered, updated or deleted in the hydrography coverage. Represents the date when the data was incorporated into the database. This item is utilized to track changes in the database.

Example: 19980515 (CCYYMMDD = May 15, 1998)

Water Point Layer Data Description

This layer is the repository for springs, seeps and other hydrographic features with limited spatial extent (i.e. most easily represented by a point.)

Point Layer: Water Points   **Layer Name: WP**
                                                                    Table Name: WP.PAT

Point Attribute Table

Defined Item Name	Item Definition	Attribute Extent
AREA	8,18,F,5	
PERIMETER	8,18,F,5	
WP#	4,5,B	
WP-ID	4,5,B	
WP_LLID_NR	13,13,C	
WP_HYDR_FTR_CD	2,2,C	Fully populated
WP_CART_FTR_CD	4,4,I	Fully populated
WP_PERIOD_CD	3,3,C	Fully populated

Data Classification - **PAT**

AREA
Water point area in decimal degrees.

PERIMETER
Water point perimeter length in decimal degrees.

WP#
Arc internal number, software assigned.

WP-ID
Water point identifier assigned by user. This item is not used nor is it changed. Presence required by the software.

WP_LLID_NR
Water point longitude/latitude identifier number. The 13-character longitude/latitude derived unique identifier of the water point. All water point features are assigned an identifier. The identifier is based on position of the point feature on the source material. The identifier code is composed by concatenating the decimal degree values (to four places of precision) of the coordinates (minus the decimal points). LLID numbers are not unique across the four coverages.
There is no valid default value for this field and it must be populated.
>   Example: 1215613480987

WP_HYDR_FTR_CD
Water point hydrographic feature code. The code used to describe the hydrographic feature type that the water point represents.
Example: SP
These codes can be found in the associated lookup table listed in Section 3 - Appendix.

WP_CART_FTR_CD
Water point cartographic feature code. The code used to describe the cartographic feature type that the water point represents. This represents feature codes developed initially by the USGS and used on the DLG's.
>   **Example: 300**

These codes can be found in the associated lookup table listed in Section 3 - Appendix.

WP_PERIOD_CD
Water point periodicity code. This is a classification of a water point in terms of the seasonal behavior of the feature over time or in terms of its surface expression.
>   **Example: int**

These codes can be found in the associated lookup table listed in Section 3 - Appendix.

Point Relate Table: Water Points   **Table Name: WP.REL_FTR_HST**

*Point **Relate T**able*

Defined Item Name	Item Definition	Attribute Extent
WP_LLID_NR	13,13,C	
FTR_MOD_CD	3,3,C	Fully populated
FTR_INPUT_CD	2,2,I	Fully populated
FTR_INTRP_CD	2,2,I	Fully populated
FTR_SRC_CD	3,3,I	Fully populated
FTR_SRC_DT	8,8,D	Fully populated
FTR_SRCSCALE_NR	7,7,I	Fully populated
FTR_ACCUR_NR	4,12,F,3	Fully populated
FTR_ORG_CD	12,12,C	Fully populated
FTR_EDIT_DT	8,8,D	Fully populated

Data Classification - **REL**

WP_LLID_NR
Water point longitude/latitude identifier number. The 13-character longitude/latitude derived unique identifier of the water point. All water point features are assigned an identifier. The identifier is based on position of the point feature on the source material. The identifier code is composed by concatenating the decimal degree values (to four places of precision) of the coordinates (minus the decimal points). LLID numbers are not unique across the four coverages. There is no valid default value for this field and it must be populated.
> **Example: 1215613480987**

FTR_MOD_CD
Feature modify code. Identifies the type of changes that occurred to hydrography water point feature. Tracks the type of modification performed on the database.
> **Example: add**

   These codes can be found in the associated lookup table listed in Section 3 - Appendix.

FTR_INPUT_CD
Feature input code. The manner in which the hydrography water point data is entered or updated in the spatial database.
> **Example: 3**

These codes can be found in the associated lookup table listed in Section 3 - Appendix.

FTR_INTRP_CD
Feature interpretation code. The methodology used to compose the hydrography water point information and how it was derived prior to data entry into the spatial coverage.
> **Example: 2**
These codes can be found in the associated lookup table listed in Section 3 - Appendix.

FTR_SRC_CD

Feature source code. The compilation map or image source used when adding or updating hydrography water point data.

        Example: 5

These codes can be found in the associated lookup table listed in Section 3 - Appendix.

FTR_SRC_DT

Feature source date. The compilation map or image source date used for the addition or update of hydrography water point data. A default date code should be used when no source date is available for historical information.

        Example: 19990515 (CCYYMMDD = May 15, 1999)
        Default: 14520101 (CCYYMMDD = January 1, 1452

FTR_SRCSCALE_NR

Feature source scale number. Describes the scale denominator of the map or image source for the hydrography water point data addition or update in the database. Exact scale can be input. The density of hydrography features displayed will vary by the base map scale. A default scale of "0" should be used when the source scale is unknown.

        Example: 24000
        Default: 0

FTR_ACCUR_NR

Feature accuracy number. Describes the positional accuracy of the hydrography water point data being added or updated in the database. Describes the correctness of the measurement. Use actual value e.g. .001; 3; 100. All units are entered in meters. A default code of "0.000" should be used when the accuracy is unknown.

        Example: 24000
        Default: 0.000

FTR_ORG_CD

Feature organization code. The organization that compiled, entered, updated or deleted the hydrography water point data. This list will grow as new organizations begin to add or update information and are certified by the clearinghouse. The Clearinghouse Manager will maintain the list of organizations authorized to participate in the editing of Hydrography Framework data.

        Example: waecy

These codes can be found in the associated lookup table listed in Section 3 - Appendix.

FTR_EDIT_DT

Feature edit date. The date the feature was either entered, updated or deleted in the hydrography coverage. Represents the date when the data was incorporated into the database. This item is utilized to track changes in the database.

        Example: 19980515 (CCYYMMDD = May 15, 1998)

Section 3 Appendix

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Data Dictionary Code Tables
Watercourse

Code Table Name: wc.lut_wc_ln_type_cd
1
WC_LN_TYPE_CD	= 5
WC_LN_TYPE_LU	= Artificial connector
WC_LN_TYPE_DS	= Watercourse line projected for connectivity purposes (stream short of the shoreline due to scale or subsurface flow)

2
WC_LN_TYPE_CD	= 10
WC_LN_TYPE_LU	= Single
WC_LN_TYPE_DS	= Single-line representing a watercourse segment

3
WC_LN_TYPE_CD	= 20
WC_LN_TYPE_LU	= Interior - in water body
WC_LN_TYPE_DS	= Watercourse interior line represented within a water body (lake, reservoir)

4
WC_LN_TYPE_CD	= 21
WC_LN_TYPE_LU	= Interior - double banked stream
WC_LN_TYPE_DS	= Watercourse interior line represented within a double banked watercourse (Columbia River)

5
WC_LN_TYPE_CD	= 30
WC_LN_TYPE_LU	= Watercourse/body perimeter
WC_LN_TYPE_DS	= Watercourse segment and water body perimeter (stream & marsh bank share the same line)

6
WC_LN_TYPE_CD	= 99
WC_LN_TYPE_LU	= Unknown/Unclassified
WC_LN_TYPE_DS	= Unknown or Unclassified

Code Table Name: wc.lut_wc_flow_path_cd
1
WC_FLOW_PATH_CD	= 1
WC_FLOW_PATH_LU	= Primary
WC_FLOW_PATH_DS	= Primary path of the watercourse centerline that flows through the waterbody. The linear path representing the flow of water from the main inlet to the main outlet of a polygonal water body.

2
WC_FLOW_PATH_CD   = 2
WC_FLOW_PATH_LU   = Secondary
WC_FLOW_PATH_DS   = Secondary path of the watercourse centerline that flows through
                            the water body. The linear path that represent additional flow paths of
                            water, usually from secondary tributaries entering and connecting to
                            the primary path.

3
WC_FLOW_PATH_CD   = 3
WC_FLOW_PATH_LU   = Not applicable
WC_FLOW_PATH_DS   = Not applicable because the watercourse line doesn't flow through a
                            water body. Codes are not applied to single lines representing a
                            watercourse.

Code Table Name: wc.lut_wc_contu_cd
1
WC_CONTU_CD   = con
WC_CONTU_LU   = Continuous
WC_CONTU_DS   = Continuous. A channel with no interruptions in space.
2
WC_CONTU_CD   = int
WC_CONTU_LU   = Interrupted
WC_CONTU_DS   = Interrupted. A perennial flow with intervening intermittent or
                            ephemeral segments or intermittent flow with intervening ephemeral
                            segments

3
WC_ CONTU _CD   = sub
WC_ CONTU _LU   = Sub-surface
WC_ CONTU _DS   = Sub-surface. Watercourse reach that represents a sub-surface flow.
4
WC_CONTU_CD   = unk
WC_CONTU_LU   = Unknown/Unclassified
WC_CONTU_DS   = Unknown or unclassified

Code Table Name: wc.lut_wc_period_cd

1
WC_PERIOD_CD   = eph
WC_PERIOD_LU   = Ephemeral
WC_PERIOD_DS   = Ephemeral. Watercourse that exist only as a result of storm precipitation.
2
WC_PERIOD_CD   = int
WC_PERIOD_LU   = Intermittent or seasonal
WC_PERIOD_DS   = Intermittent or seasonal. Watercourse that is dry during certain times of the
                            year.
3
WC_PERIOD_CD   = per
WC_PERIOD_LU   = Perennial
WC_PERIOD_DS   = Perennial. Watercourse that essentially exist year round

4
WC_PERIOD_CD   = unk
WC_PERIOD_LU   = Unknown/Unclassified
WC_PERIOD_DS   = Unknown or unclassified. Used when condition information is unknown or
                        unclassified

Water Body

Code Table Name: wb.lut_wb_period_cd
1
WB_PERIOD_CD   = dry
WB_PERIOD_LU   = Dry land
WB_PERIOD_DS   = Dry land. Indicates an island.
2
WB_PERIOD_CD   = eph
WB_PERIOD_LU   = Ephemeral
WB_PERIOD_DS   = Ephemeral. Water bodies that exist only as a result of storm precipitation.
3
WB_PERIOD_CD   = int
WB_PERIOD_LU   = Intermittent or seasonal
WB_PERIOD_DS   = Intermittent or seasonal. Water bodies that are dry during certain times of
                        the year.
4
WB_PERIOD_CD   = per
WB_PERIOD_LU   = Perennial
WB_PERIOD_DS   = Perennial. Water bodies that essentially exist year round.
5
WB_PERIOD_CD   = unk
WB_PERIOD_LU   = Unknown/Unclassified
WB_PERIOD_DS   = Unknown or Unclassified. Used when condition information is unknown or
                        unclassified.

Water Shoreline

Code Table Name: ws.lut_ws_datum_cd
1
WS_DATUM_CD   = ehw
WS_DATUM_LU   = Extreme high
WS_DATUM_DS   = Extreme high water
2
WS_DATUM_CD   = elw
WS_DATUM_LU   = Extreme low
WS_DATUM_DS   = Extreme low water
3
WS_DATUM_CD   = fw
WS_DATUM_LU   = Fresh water
WS_DATUM_DS   = Fresh water shoreline

4
WS_DATUM_CD   = mhhw
WS_DATUM_LU   = Mean higher high
WS_DATUM_DS   = Mean higher high water
5
WS_DATUM_CD   = mhw
WS_DATUM_LU   = Mean high
WS_DATUM_DS   = Mean high water
6
WS_DATUM_CD   = mllw
WS_DATUM_LU   = Mean lower low
WS_DATUM_DS   = Mean lower low water
7
WS_DATUM_CD   = mlw
WS_DATUM_LU   = Mean low
WS_DATUM_DS   = Mean low water
8
WS_DATUM_CD   = na
WS_DATUM_LU   = Not a shoreline
WS_DATUM_DS   = Does not constitute a shoreline. No datum associated.

Code Table Name: ws.lut_ws_dflt_shore_cd
1
WS_DFLT_SHORE_CD   = n
WS_DFLT_SHORE_LU   = No
WS_DFLT_SHORE_DS   = No, it is not the default shoreline
2
WS_DFLT_SHORE_CD   = y
WS_DFLT_SHORE_LU   = Yes
WS_DFLT_SHORE_DS   = Yes, it is the default shoreline

Code Table Name: ws.lut_ws_type_cd
1
WS_TYPE_CD   = 1
WS_TYPE_LU   = Marine mainland
WS_TYPE_DS   = Marine mainland shoreline
2
WS_TYPE_CD   = 2
WS_TYPE_LU   = Marine island
WS_TYPE_DS   = Marine island shoreline
3
WS_TYPE_CD   = 3
WS_TYPE_LU   = Freshwater
WS_TYPE_DS   = Freshwater shoreline
4
WS_TYPE_CD   = 4
WS_TYPE_LU   = Freshwater island
WS_TYPE_DS   = Freshwater island shoreline

5
WS_TYPE_CD   = 5
WS_TYPE_LU   = Artificial
WS_TYPE_DS   = Artificial line
6
WS_TYPE_CD   = 6
WS_TYPE_LU   = Estuarine
WS_TYPE_DS   = Estuarine (bays) shoreline
7
WS_TYPE_CD   = 99
WS_TYPE_LU   = Unknown/Unclassified
WS_TYPE_DS   = Unknown or unclassified. Used when information is unknown or unclassified.

Water Point

Code Table Name: wp.lut_wp_period_cd

1
WP_PERIOD_CD   = eph
WP_PERIOD_LU   = Ephemeral
WP_PERIOD_DS   = Ephemeral. Water features that exist only as a result of storm precipitation.
2
WP_PERIOD_CD   = int
WP_PERIOD_LU   = Intermittent/seasonal
WP_PERIOD_DS   = Intermittent or seasonal. Water features that are dry during certain times of
                         the year.
3
WP_PERIOD_CD   = per
WP_PERIOD_LU   = Perennial
WP_PERIOD_DS   = Perennial. Water feature that essentially exist year round
 4
WP_PERIOD_CD   = unk
WP_PERIOD_LU   = Unknown/Unclassified
WP_PERIOD_DS   = Unknown or unclassified. Used when condition information is unknown or
                         unclassified.

Multiple Coverage Code Tables

The following code tables are reflected in each of the water coverages described in this physical data model - points, bodies, shorelines, and courses. These represent the common codes between all layers (wc, wb, ws, wp) and are collectively referred to with the "wx" abbreviation.

The "x" in "wx" reflects the variable that is replaced depending on the code table that is used for the respective coverage.

Example: **wx.lut_wx_hydr_ftr_cd**   **wc.lut_wx_hydr_ftr_cd**
wb.lut_wx_hydr_ftr_cd
ws.lut_wx_hydr_ftr_cd
wp.lut_wx_hydr_ftr_cd

Code Table Name: wx.lut_wx_hydr_ftr_cd
1
WX_HYDR_FTR_CD	= DC
WX_HYDR_FTR_LU	= Ditches/canals
WX_HYDR_FTR_DS	= Ditches, canals, flumes

2
WX_HYDR_FTR_CD	= ES
WX_HYDR_FTR_LU	= Bays/estuaries
WX_HYDR_FTR_DS	= Bays, estuaries, and oceans

3
WX_HYDR_FTR_CD	= GL
WX_HYDR_FTR_LU	= Glaciers/snowfields
WX_HYDR_FTR_DS	= Glaciers or permanent snowfields

4
WX_HYDR_FTR_CD	= IM
WX_HYDR_FTR_LU	= Impoundments
WX_HYDR_FTR_DS	= Impoundments

5
WX_HYDR_FTR_CD	= IS
WX_HYDR_FTR_LU	= Islands
WX_HYDR_FTR_DS	= Islands

6
WX_HYDR_FTR_CD	= IW
WX_HYDR_FTR_LU	= Impounded wet areas
WX_HYDR_FTR_DS	= Impounded wet areas

7
WX_HYDR_FTR_CD	= LA
WX_HYDR_FTR_LU	= Lakes/ponds
WX_HYDR_FTR_DS	= Lakes and ponds

8
WX_HYDR_FTR_CD	= PP
WX_HYDR_FTR_LU	= Pipelines/water conveyance
WX_HYDR_FTR_DS	= Pipelines and water conveyance structures

9
```
WX_HYDR_FTR_CD        = SC
WX_HYDR_FTR_LU        = Side channels
WX_HYDR_FTR_DS        = Side channels to rivers or stream
```
10
```
WX_HYDR_FTR_CD        = SP
WX_HYDR_FTR_LU        = Springs/seeps
WX_HYDR_FTR_DS        = Springs and seeps
```
11
```
WX_HYDR_FTR_CD        = ST
WX_HYDR_FTR_LU        = Streams/rivers
WX_HYDR_FTR_DS        = Streams and rivers
```
12
```
WX_HYDR_FTR_CD        = UN
WX_HYDR_FTR_LU        = Unknown/Unclassified
WX_HYDR_FTR_DS        = Unknown or unclassified
```
13
```
WX_HYDR_FTR_CD        = WT
WX_HYDR_FTR_LU        = Wet areas
WX_HYDR_FTR_DS        = Wet areas
```

Code Table Name: wx.lut_wx_cart_ftr_cd

1
WX_CART_FTR_CD	= 100
WX_CART_FTR_LU	= Alkali flat
WX_CART_FTR_DS	= Alkali flat

2
WX_CART_FTR_CD	= 101
WX_CART_FTR_LU	= Reservoir
WX_CART_FTR_DS	= Reservoir

3
WX_CART_FTR_CD	= 103
WX_CART_FTR_LU	= Glacier/snowfield
WX_CART_FTR_DS	= Glacier or permanent snowfield

4
WX_CART_FTR_CD	= 105
WX_CART_FTR_LU	= Inundation
WX_CART_FTR_DS	= Inundation

5
WX_CART_FTR_CD	= 106
WX_CART_FTR_LU	= Fish hatchery/farm
WX_CART_FTR_DS	= Fish hatchery or farm

6
WX_CART_FTR_CD	= 107
WX_CART_FTR_LU	= Industrial water impoundment
WX_CART_FTR_DS	= Industrial water impoundment

7
WX_CART_FTR_CD	= 109
WX_CART_FTR_LU	= Sewage pond/filtration bed
WX_CART_FTR_DS	= Sewage disposal pond or filtration bed

8
WX_CART_FTR_CD	= 110
WX_CART_FTR_LU	= Tailings pond
WX_CART_FTR_DS	= Tailings pond

9
WX_CART_FTR_CD	= 111
WX_CART_FTR_LU	= Marsh/wetland
WX_CART_FTR_DS	= Marsh, wetland, swamp, bog

10
WX_CART_FTR_CD	= 114
WX_CART_FTR_LU	= Cranberry bog
WX_CART_FTR_DS	= Cranberry bog

11
WX_CART_FTR_CD	= 115
WX_CART_FTR_LU	= Flats
WX_CART_FTR_DS	= Flats (tidal, mud, sand, gravel)

12
WX_CART_FTR_CD	= 116
WX_CART_FTR_LU	= Bay/estuary
WX_CART_FTR_DS	= Bay, estuary, gulf, ocean or sea

13
WX_CART_FTR_CD   = 117
WX_CART_FTR_LU   = Shoal
WX_CART_FTR_DS   = Shoal
14
WX_CART_FTR_CD   = 300
WX_CART_FTR_LU   = Spring/seep
WX_CART_FTR_DS   = Spring or seep
15
WX_CART_FTR_CD   = 400
WX_CART_FTR_LU   = Rapids
WX_CART_FTR_DS   = Rapids
16
WX_CART_FTR_CD   = 401
WX_CART_FTR_LU   = Falls
WX_CART_FTR_DS   = Falls
17
WX_CART_FTR_CD   = 402
WX_CART_FTR_LU   = Gravel pit/quarry with water
WX_CART_FTR_DS   = Gravel pit or quarry filled with water
18
WX_CART_FTR_CD   = 406
WX_CART_FTR_LU   = Dam/weir
WX_CART_FTR_DS   = Dam or weir
19
WX_CART_FTR_CD   = 407
WX_CART_FTR_LU   = Canal lock/sluice
WX_CART_FTR_DS   = Canal lock or sluice gate
20
WX_CART_FTR_CD   = 408
WX_CART_FTR_LU   = Spillway
WX_CART_FTR_DS   = Spillway
21
WX_CART_FTR_CD   = 410
WX_CART_FTR_LU   = Exposed rock
WX_CART_FTR_DS   = Exposed rock
22
WX_CART_FTR_CD   = 412
WX_CART_FTR_LU   = Stream/river
WX_CART_FTR_DS   = Stream or river
23
WX_CART_FTR_CD   = 414
WX_CART_FTR_LU   = Ditch/canal
WX_CART_FTR_DS   = Ditch or canal
24
WX_CART_FTR_CD   = 415
WX_CART_FTR_LU   = Aqueduct
WX_CART_FTR_DS   = Aqueduct

```
25
WX_CART_FTR_CD        =  417
WX_CART_FTR_LU        = Penstock
WX_CART_FTR_DS        = Penstock
26
WX_CART_FTR_CD        =  418
WX_CART_FTR_LU        = Siphon
WX_CART_FTR_DS        = Siphon
27
WX_CART_FTR_CD        =  419
WX_CART_FTR_LU        = Channel in water
WX_CART_FTR_DS        = Channel in water area
28
WX_CART_FTR_CD        =  420
WX_CART_FTR_LU        = Wash/ephemeral
WX_CART_FTR_DS        = Wash or ephemeral drain
29
WX_CART_FTR_CD        =  421
WX_CART_FTR_LU        = Lake/pond
WX_CART_FTR_DS        = Lake or pond
30
WX_CART_FTR_CD        =  422
WX_CART_FTR_LU        = Reef
WX_CART_FTR_DS        = Reef
31
WX_CART_FTR_CD        =  423
WX_CART_FTR_LU        = Sand/gravel in open water
WX_CART_FTR_DS        = Sand or gravel in open water
32
WX_CART_FTR_CD        =  425
WX_CART_FTR_LU        = Fish ladder
WX_CART_FTR_DS        = Fish ladder
33
WX_CART_FTR_CD        =  466
WX_CART_FTR_LU        = Pier/jetty
WX_CART_FTR_DS        = Pier, jetty, breakwater, dock, wharf or causeway
34
WX_CART_FTR_CD        =  901
WX_CART_FTR_LU        = Impoundment
WX_CART_FTR_DS        = Impoundment
35
WX_CART_FTR_CD        =  902
WX_CART_FTR_LU        = Island
WX_CART_FTR_DS        = Island
36
WX_CART_FTR_CD        =  999
WX_CART_FTR_LU        = Unknown/Unclassified
WX_CART_FTR_DS        = Unknown or unclassified
```

Code Table Name: wx.lut_ftr_mod_cd
1
FTR_MOD_CD   = add
FTR_MOD_LU   = Addition
FTR_MOD_DS   = Addition of spatial feature
2
FTR_MOD_CD   = del
FTR_MOD_LU   = Deletion
FTR_MOD_DS   = Deletion of existing spatial feature. Documents the historical ID which
                       maybe referenced in an orphaned event row that will have no matching spatial
                       record.

3
FTR_MOD_CD   = upd
FTR_MOD_LU   = Update
FTR_MOD_DS   = Update of existing spatial feature

Code Table Name: wx.lut_ftr_input_cd
1
FTR_INPUT_CD   = 1
FTR_INPUT_LU   = Automatic
FTR_INPUT_DS   = Automatic via computer software
2
FTR_INPUT_CD   = 2
FTR_INPUT_LU   = Scan
FTR_INPUT_DS   = Scanning
3
FTR_INPUT_CD   = 3
FTR_INPUT_LU   = Table digitize
FTR_INPUT_DS   = Tablet digitizing
4
FTR_INPUT_CD   = 4
FTR_INPUT_LU   = Coordinate File
FTR_INPUT_DS   = Spatial coordinate file
5
FTR_INPUT_CD   = 5
FTR_INPUT_LU   = Line tracking
FTR_INPUT_DS   = Automatic line tracing
6
FTR_INPUT_CD   = 6
FTR_INPUT_LU   = Heads-up digitize
FTR_INPUT_DS   = Heads-up digitizing
7
FTR_INPUT_CD   = 99
FTR_INPUT_LU   = Unknown/unclassified
FTR_INPUT_DS   = Unspecified map feature input method

Code Table Name: wx.lut_ftr_intrp_cd

1
FTR_INTRP_CD   = 1
FTR_INTRP_LU   = Photogrammetric
FTR_INTRP_DS   = Photogrammetric interpretation
2
FTR_INTRP_CD   = 2
FTR_INTRP_LU   = GPS
FTR_INTRP_DS   = Global Position System (GPS)
3
FTR_INTRP_CD   = 3
FTR_INTRP_LU   = Photointerp
FTR_INTRP_DS   = Photointerpretation
4
FTR_INTRP_CD   = 4
FTR_INTRP_LU   = Crenulation
FTR_INTRP_DS   = Interpretation of streams from contour crenulation
5
FTR_INTRP_CD   = 5
FTR_INTRP_LU   = Surface modeling
FTR_INTRP_DS   = Surface flow modeling
6
FTR_INTRP_CD   = 6
FTR_INTRP_LU   = Transect
FTR_INTRP_DS   = Transect along a stream channel
7
FTR_INTRP_CD   = 7
FTR_INTRP_LU   = Existing work
FTR_INTRP_DS   = Existing line work
8
FTR_INTRP_CD   = 8
FTR_INTRP_LU   = Best guess
FTR_INTRP_DS   = Stream not directly observable so stream location is estimated
9
FTR_INTRP_CD   = 99
FTR_INTRP_LU   = Unknown/unclassified
FTR_INTRP_DS   = Unknown or unclassified

Code Table Name: wx.lut_ftr_src_cd

1
FTR_SRC_CD   = 1
FTR_SRC_LU   = USGS Map
FTR_SRC_DS   = USGS Topographic Map
2
FTR_SRC_CD   = 2
FTR_SRC_LU   = Orthophoto
FTR_SRC_DS   = Orthophotography
3
FTR_SRC_CD   = 3
FTR_SRC_LU   = Aerial photo
FTR_SRC_DS   = Aerial Photograph

```
4
FTR_SRC_CD           =  4
FTR_SRC_LU           = MSS Imagery
FTR_SRC_DS           = Multi-Spectral Satellite Imagery
5
FTR_SRC_CD           =  5
FTR_SRC_LU           = Field Survey
FTR_SRC_DS           = Field Survey of on the ground observation
6
FTR_SRC_CD           =  6
FTR_SRC_LU           = Plan Map
FTR_SRC_DS           = Planning Map
7
FTR_SRC_CD           =  7
FTR_SRC_LU           = Field Map
FTR_SRC_DS           = Field Map
8
FTR_SRC_CD           =  8
FTR_SRC_LU           = DEM
FTR_SRC_DS           = Digital Elevation Model (DEM)
9
FTR_SRC_CD           =  9
FTR_SRC_LU           = Radar Imagery
FTR_SRC_DS           = Radar Imagery
10
FTR_SRC_CD           =  10
FTR_SRC_LU           = Laser Imagery
FTR_SRC_DS           = Laser Imagery
11
FTR_SRC_CD           =  11
FTR_SRC_LU           = CFF
FTR_SRC_DS           = Cartographic Feature File (CFF)
12
FTR_SRC_CD           =  12
FTR_SRC_LU           = NWI Map
FTR_SRC_DS           = National Wetlands Inventory (NWI) Map
13
FTR_SRC_CD           =  13
FTR_SRC_LU           = Imagery - Unspecified
FTR_SRC_DS           = Imagery – Unspecified Source
14
FTR_SRC_CD           =  99
FTR_SRC_LU           = Unknown/Unclassified
FTR_SRC_DS           = Unknown or unclassified
```

Code Table Name: wx.lut_ftr_org_cd
```
1
FTR_ORG_CD           = bcmelp
FTR_ORG_LU           = BC Ministry of Environ
FTR_ORG_DS           = British Columbia Ministry of Environment, Lands and Parks
```

```
2
FTR_ORG_CD          = coclrkwa
FTR_ORG_LU          = Clark Co, WA
FTR_ORG_DS          = Clark County, WA
3
FTR_ORG_CD          = cokingwa
FTR_ORG_LU          = King Co,WA
FTR_ORG_DS          = King County, WA
4
FTR_ORG_CD          = copierwa
FTR_ORG_LU          = Pierce Co, WA
FTR_ORG_DS          = Pierce County, WA
5
FTR_ORG_CD          = cosnohwa
FTR_ORG_LU          = Snoh. Co, WA
FTR_ORG_DS          = Snohomish County, WA
6
FTR_ORG_CD          = cospokwa
FTR_ORG_LU          = Spokane Co, WA
FTR_ORG_DS          = Spokane County, WA
7
FTR_ORG_CD          = cothurswa
FTR_ORG_LU          = Thurston Co,WA
FTR_ORG_DS          = Thurston County, WA
8
FTR_ORG_CD          = coyakwa
FTR_ORG_LU          = Yakima Co, WA
FTR_ORG_DS          = Yakima County, WA
9
FTR_ORG_CD          = ctyseawa
FTR_ORG_LU          = Seattle,WA
FTR_ORG_DS          = City of Seattle, WA
10
FTR_ORG_CD          = ctyolywa
FTR_ORG_LU          = Olympia, WA
FTR_ORG_DS          = City of Olympia, WA
11
FTR_ORG_CD          = ctyvanwa
FTR_ORG_LU          = Vancouver, WA
FTR_ORG_DS          = City of Vancouver, WA
12
FTR_ORG_CD          = iricc
FTR_ORG_LU          = IRICC
FTR_ORG_DS          = Intergovernmental Resource Information Coordinating Council
13
FTR_ORG_CD          = lvwfbr
FTR_ORG_LU          = Longview Fiber
FTR_ORG_DS          = Longview Fiber Company
```

14
FTR_ORG_CD   = nmfs
FTR_ORG_LU   = NMFS
FTR_ORG_DS   = National Marine Fisheries Service
15
FTR_ORG_CD   = nrcs
FTR_ORG_LU   = NRCS
FTR_ORG_DS   = Natural Resources Conservation Service
16
FTR_ORG_CD   = nwifc
FTR_ORG_LU   = NWIFC
FTR_ORG_DS   = Northwest Indian Fisheries Commission
17
FTR_ORG_CD   = ordeq
FTR_ORG_LU   = ODEQ
FTR_ORG_DS   = OR Dept. of Environmental Quality
18
FTR_ORG_CD   = psrc
FTR_ORG_LU   = PSRC
FTR_ORG_DS   = Puget Sound Regional Council
19
FTR_ORG_CD   = raynr
FTR_ORG_LU   = Rayonier
FTR_ORG_DS   = ITT Rayonier
20
FTR_ORG_CD   = smpsn
FTR_ORG_LU   = Simpson
FTR_ORG_DS   = Simpson Timber Company
21
FTR_ORG_CD   = unknown
FTR_ORG_LU   = Unknown
FTR_ORG_DS   = Unknown input organization
22
FTR_ORG_CD   = usace
FTR_ORG_LU   = USACE
FTR_ORG_DS   = U.S. Army Corps of Engineers
23
FTR_ORG_CD   = usblm
FTR_ORG_LU   = USBLM
FTR_ORG_DS   = U.S. Bureau of Land Management
24
FTR_ORG_CD   = usbor
FTR_ORG_LU   = USBR
FTR_ORG_DS   = U.S. Bureau of Reclamation
25
FTR_ORG_CD   = usbpa
FTR_ORG_LU   = USBPA
FTR_ORG_DS   = U.S. Bonneville Power Administration

26
FTR_ORG_CD	= usepa	
FTR_ORG_LU	= USEPA	
FTR_ORG_DS	= U.S. Environmental Protection Agency	

27
FTR_ORG_CD	= usepa-r10	
FTR_ORG_LU	= USEPA-10	
FTR_ORG_DS	= U.S. Environmental Protection Agency - Region 10	

28
FTR_ORG_CD	= usfs	
FTR_ORG_LU	= USFS	
FTR_ORG_DS	= U.S. Forest Service	

29
FTR_ORG_CD	= usfs-oly	
FTR_ORG_LU	= USFS-Olympic	
FTR_ORG_DS	= U.S. Forest Service - Olympic	

30
FTR_ORG_CD	= usfws	
FTR_ORG_LU	= USFWS	
FTR_ORG_DS	= U.S. Fish and Wildlife Service	

31
FTR_ORG_CD	= usgs	
FTR_ORG_LU	= USGS	
FTR_ORG_DS	= U.S. Geological Survey	

32
FTR_ORG_CD	= usgs-nmd	
FTR_ORG_LU	= USGS-NMD	
FTR_ORG_DS	= U.S. Geological Survey - National Mapping Division	

33
FTR_ORG_CD	= usnps	
FTR_ORG_LU	= USNPS	
FTR_ORG_DS	= U.S. National Park Service	

34
FTR_ORG_CD	= wadfw	
FTR_ORG_LU	= WDFW	
FTR_ORG_DS	= Washington Department of Fish and Wildlife	

35
FTR_ORG_CD	= wadnr	
FTR_ORG_LU	= WDNR	
FTR_ORG_DS	= Washington State Department of Natural Resources	

36
FTR_ORG_CD	= wadot	
FTR_ORG_LU	= WDOT	
FTR_ORG_DS	= Washington Department of Transportation	

37
FTR_ORG_CD	= waecy	
FTR_ORG_LU	= Ecology	
FTR_ORG_DS	= Washington Department of Ecology	

38
FTR_ORG_CD   = weyhsr
FTR_ORG_LU   = Weyerhaeuser
FTR_ORG_DS   = Weyerhaeuser Company

Cross Reference Code Table Name: wx.xrf_hydr_cart
Record WX_HYDR_FTR_CD WX_CART_FTR_CD

```
 1   dc              407
 2   dc              408
 3   dc              414
 4   dc              425
 5   es              115
 6   es              116
 7   es              117
 8   es              419
 9   es              422
10   es              466
11   gl              103
12   im              101
13   im              105
14   im              106
15   im              107
16   im              109
17   im              466
18   im              901
19   is              410
20   is              423
21   is              902
22   iw              111
23   iw              114
24   la              100
25   la              110
26   la              402
27   la              421
28   la              466
29   pp              415
30   pp              417
31   pp              418
32   sc              412
33   sp              300
34   st              117
35   st              400
36   st              401
37   st              406
38   st              412
39   st              419
40   st              420
41   st              466
42   un              999
43   wt              111
```

Data Dictionary Format Sheet Explanations

The formatting sheets provide the users with a road map with a description of how information is stored in the various data layers and coverages described in this data dictionary. Each coverage type is listed and its various components explained in detail.

Polygon Layer:[1]
Line . . .

Feature Attribute Table Outline

Begin Column[4]	Defined Item Name[5]	Item Definition[7]
13*	Cover-ID	4,5,B
17	VARIABLE1	1,1,I
* Redefined Items*8		

VARIABLE1
This is a description of Variable1, including any coding scheme and permissible values (e.g., 1 = good, 2 = bad, 3 = ugly).

Notes:
[1]The type of coverage, either polygon, line, or point; or type of table, either route, section, event, or reference.

[2]A descriptive variable (item) name.

[3]**In a Polygon Attribute Table (PAT)**, there are four items automatically assigned. Only the last item, Cover-ID, is shown above. They are:

Area	(units in square coverage units)	4,12,F
Perimeter	(units in coverage units)	4,12,F
Cover#	(polygon internal number; computer assigned)	4,5,B
Cover-ID	(user defined ID; if not assigned by user, will usually default to Cover#)	4,5,B

*13 for PAT, 25 for AAT

In an Arc Attribute Table (AAT), there are seven items automatically assigned. Only the last item, Cover-ID, is shown above. They are:

Fnode#	(from node internal number)	4,5,B
Tnode#	(to node internal number)	4,5,B
Lpoly#	(left polygon; if only a line coverage, then set to zero)	4,5,B
Rpoly#	(right polygon)	4,5,B
Length	(units in coverage units)	4,12,B
Cover#	(arc internal number)	4,5,B
Cover-ID	(arc user ID)	4,5,B

[4]The variable begins in this column in the INFO record. An INFO record can be 4,096 columns (bytes) wide. This limit applies also to records so that the combined length of selected and related records cannot exceed 4,096.

[5]The defined variable name. This is how INFO will read the item. The item name can be up to 16 characters long, no spaces, must begin with a letter, and is case sensitive.

[6]An alternative name can be assigned to the item. This is sometimes done to shorten the item name.

[7]The item definition consists of four elements:

1. Item name (see Note 5)
2. Item width - the number of bytes to store the variable
3. Output width - the number of columns to display the item value
4. Item type

The Item width and Output width may be different because decimal and binary representations of the same numeric value have different widths. If no output width is specified, the default width is the item width.

There are 11 possible INFO item types:

Type	Permissible Width	Uses	Stored As
1. B = Binary	2 or 4	Store large/small numbers economically	Binary
2. C = Character	4,096	Store alphanumeric data (ARC imposes a 320 limit)	ASCII
3. D = Date	8	Store dates ASCII	
4. F = Floating	4 or 8	Store extremely large/small numbers	Binary
5. I = Integer	1 to 16	Codes ASCII	
6. N = Numeric	1 to 16	Store decimal numbers as characters	ASCII
7. L = Leading fill	1 to 16	Store leading zeroes in numbers such as Zip Codes (i.e., 01234)	ASCII
8. V = Implied	1 to 16	decimal point	
9. O = Overpunch	1 to 16		
10. T = Training sign	1 to 16		
11. P = Packed decimal	1 to 16		

The range for a 2-byte binary is **plus/minus** (use symbol) 32,767; for a 4-byte binary is **plus/minus** 2,147,483,648 (display for this would be 4,10,B).

Types L, V, O, T, and P are not supported by ARC. In general, the more that items are stored in binary format, the less storage space is required.

[8]A redefined item is a new name, type, or width for previously defined items or subsets of items in the FAT. Commonly used to create unique relate items to access data in a lookup table.

Format Sheet Explanation - Section Table
Section Table: **Table Name:**

*Sec*tion *T*able Outline

Begin Column	Defined Item Name	Item Definition
1	ROUTELINK#	4,5,B
5	ARCLINK#	4,5,B
9	F-MEAS	4,12,F,3
13	T-MEAS	4,12,F,3
17	F-POS	4,12,F,3
21	T-POS	4,12,F,3
25	<subclass>#	4,5,B
29	<subclass>-ID	4,5,B

Data Classification - **SEC**

In a section attribute table (SEC), there are eight items automatically assigned. The items found in a SEC are:

Routelink#	(route internal # from RAT; identifies the route to which the section belongs)	4,5,B
Arclink#	(arc internal # from the AAT; identifies the arc to which the section belongs)	4,5,B
F-meas	(measure of start position of section)	4,12,F,3
T-meas	(measure end position of section)	4,12,F,3
F-pos	(start position in terms of percentage of existing arc)	4,12,F,3
T-pos	(end position in terms of percentage of existing arc)	4,12,F,3
<subclass>#	(internal sequence number of the sections)	4,5,B
<subclass>-ID	(section ID; if not assigned by user, will default to subclass #)	4,5,B

Please see the ARC/INFO User's Guide, "Dynamic Segmentation," for an explanation of routes, sections, and event tables.

Format Sheet Explanation - Route Table
Route Table: **Table Name:**

*R*oute *A*ttribute *T*able Outline

Begin Column	Defined Item Name	Item Definition
1	<subclass>#	4,5,B
5	<subclass>-ID	4,5,B
9	<Route key item>	User defined

Data Classification - **RAT**

In a Route Attribute Table (RAT), the <subclass># is software assigned. The <subclass>-ID is also software assigned, but can be re-assigned by the user. The route key item is user defined and assigned. The items in a RAT are defined as:

<subclass>>#	(internal sequence number of the sections)	4,5,B
<subclass>>-ID	(route-system ID; if not assigned by user, will default to subclass #)	4,5,B
<Route key item>	(relates RAT to event databases)	User defined

Please see the ARC/INFO User's Guide, "Dynamic Segmentation," for an explanation of routes, sections, and event tables.

Format Sheet Explanation - Linear Event Table
Linear Event Table: **Table Name:**

*E*vent *T*able Outline

Begin Column	Defined Item Name	Item Definition
1	<event key item>	User defined
7	FROM	4,12,F,3
11	TO	4,12,F,3

Data Classification - **RAT**

In a linear event table (EVT), there are three items always present. The event key item is user defined. They are:

<event key item>	(relates event table to RAT)	User defined
	(The event key items for WAHYD are defined as 13,13,C)	
From	(start measure in terms of index on existing route)	4,12,F,3
To	(end measure in terms of index on existing route)	4,12,F,3

Please see the ARC/INFO User's Guide, "Dynamic Segmentation," for an explanation of routes, sections, and event tables.

Format Sheet Explanation - Point Relate Table
Point Event Table: **Table Name:**

*E*vent *T*able *Outline*

Begin Column	Defined Item Name	Item Definition
1	<relate key item>	User defined
7	Location	4,12,F,3

Data Classification - **REL**

In a point relate table (REL), there are at least two items always present. The relate key item is user defined. They are:

<relate key item>   (relates table to PAT)   User defined
                (The relate key items for WAHYD points are defined as 13,13,C)

Please see the ARC/INFO User's Guide, "Dynamic Segmentation," for an explanation of routes, sections, and event tables.